PROCESS FOR XYLENE ISOMERIZATION AND ETHYLBENZENE CONVERSION

ABSTRACT

A process for the isomerization of xylenes and the conversion of ethylbenzene to benzene and ethane using a catalyst system comprising two catalysts. The first catalyst is unselectivated and comprises: (a) an intermediate pore size zeolite, e.g., ZSM-5; (b) at least one hydrogenation component to deethylate ethylbenzene, e.g. Group VIII and/or Group VIIIB metal; and (c) an amorphous binder, said first catalyst requiring at least 50 minutes to sorb 30% of the equilibrium capacity of ortho-xylene at 120°C and at an ortho-xylene partial pressure of 4.5 ± 0.8 mm of mercury. The second catalyst comprises an intermediate pore size zeolite, e.g., ZSM-5, and requires less than 50 minutes to sorb 30% of the equilibrium capacity of ortho-xylene at 120°C and at an ortho-xylene partial pressure of 4.5 ± 0.8 mm of mercury. The amount of first catalyst present in the catalyst system is a volume greater than 55 percent based on the sum of the volumes of the first catalyst and second catalyst.